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TITLE: Third-order nonlinear optical element

Detailed Description Text (28):

Preferred examples of the shape of the optical element of the present invention are shown in FIG. 3. In FIG. 3, the input light-impinging surface is designated by the reference numeral 32, and the output light-exitting surface is designated by the reference numeral 34. FIG. 3 (a) shows a single crystal of the charge-transfer complex in the form of parallelepiped, and FIG. 3 (b) shows a single crystal in the form of a cubic. In these cases, any pair of surfaces may be used as the input light-impinging surface and output light-exitting surface. FIG. 3 (c) shows a crystal in the form of a plate having a pair of substantially parallel surfaces. In this case, the substantially parallel surfaces may be used as the input light-impinging surface and output light-exitting surface. The portions other than the two surfaces may have any form (in the illustrated example, the crystal is cylindrical). FIG. 3 (d) shows a crystal in the form of a pillar. The cross section of the pillar may be any shape such as circle, oval, truncated oval and polygonals. In this case, not only the end surfaces 32 and 34, but also the side surface of the pillar may be used as the input light-impinging surface or the output light-exitting surface. FIG. 3 (e) shows a crystal in the form of a curved cylinder. When the diameter of the cylinder is small, this shape is called as a fiber. FIG. 3 (f) shows a crystal in the form of a prism. In this case, the average optical path-length is not less than 0.05 mm. FIG. 3 (g) shows a crystal in the form of a convex lens. In this case, the thickness of the center portion of the lens is not less than 0.05 mm. FIG. 3 (h) shows a crystal in the form of a concaved lens. In this case, the thickness of the center portion of the lens is not less than 0.05 mm. FIG. 3 (i) shows a crystal in the form of a flat plate. In this case, a single surface may simultaneously act as the input light-impinging surface and the output light-exitting surface. More particularly, a pair of prisms are placed on the plate. After passing through the prism 36, the input light passes through the plate and exits from another prism 38. In using this type of element, for example, a transparent film is placed on the element, and light is introduced into the film using a prism. The nonlinear optical effect may be obtained by the evanescent wave of the light. It is contemplated that such a single surface which acts as the input light-impinging surface and the output light-exitting surface is construed as "two surfaces" in claim 1, and such a mode is also included in the scope of the present invention.

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